US EPA Mid-Continent Ecology Division

Research Project Summary

Development of a GIS-based Expert System to Define Amphibian Habitat

Overview

A GIS is being used to develop an expert system to describe and map the location of suitable breeding habitat for two anuran (frogs and toads) species native to the Northern Lakes and Forests ecoregion, covering northcentral and northeastern Minnesota, northern Wisconsin, and the Upper Peninsula of Michigan. Suitable breeding habitat has been defined based on local and landscape habitat features (e.g., accessibility to required foraging and hibernation habitats) identified as important for these species by regional experts through a consensus-building process. The importance of these attributes in defining habitat quality for northern leopard frogs and gray tree frogs will be verified using data from NAAMP roadside surveys. Locations with the combination of breeding habitat features required by each species will be determined by overlaying coverages of wetlands location and habitat features, landuse/land cover, and forest cover type.

Key Products

Test of an expert system for anuran habitat using data from the North American Amphibian Monitoring Program (NAAMP).

Expert system for anuran habitat software, using EMDS (Environmental Management Decision Support system) / ArcView.

http://www.mbr-pwrc.usgs.gov/wifrog/naamp.htm

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